

BOARD OF SUPERVISORS

Brown County



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LAND CONSERVATION SUBCOMMITTEE

Norb Dantine, Chair
Dave Kaster, Vice Chair
Bernie Erickson, Mike Fleck, Dan Haefs, Norbert Vande Hei

LAND CONSERVATION SUBCOMMITTEE

Monday, July 25, 2011

7:00 p.m.

**Room 161, UW-Extension
1150 Bellevue Street**

- I. Call Meeting to Order.
 - II. Approve/Modify Agenda.
 - III. Approve/Modify Minutes of Land Conservation Subcommittee of June 27, 2011.
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1. Land and Water Conservation Department Budget Update, June 2011 (will be provided at meeting if financials available).
 2. Request from Larry Dufek for a variance to build an animal waste storage facility within 250 feet of property line of Norman Strebel (maps and documentation will be provided at meeting). Dave Wetenkamp.
 3. Budget Adjustment Request (11-93): \$81,950 cost share for two conservation projects, Jim Leick, Ron Conard; 100% of grant is funded by DATCP/ DNR. Jon Bechle, Brad Holtz.
 4. Jim Leick request for variance to construct a manure storage facility closer than 250 feet from property line (maps and variance waivers will be provided at meeting). Dave Wetenkamp
 5. Final Report of Brown County Waste Transformation Initiative. Brad Holtz.
 6. Such other matters as authorized by law.
 7. Adjourn.

Norb Dantine, Jr., Chair

Notice is hereby given that action by the Committee may be taken on any of the items which are described or listed in this agenda. Please take notice that it is possible additional members of the Board of Supervisors may attend this meeting, resulting in a majority or quorum of the Board of Supervisors. This may constitute a meeting of the Board of Supervisors for purposes of discussion and information gathering relative to this agenda.

PROCEEDINGS OF THE BROWN COUNTY
LAND CONSERVATION SUBCOMMITTEE

Pursuant to Section 18.94 Wis. Stats., a regular meeting of the **Brown County Land Conservation Subcommittee** was held on Monday, June 27, 2011 in Room 161, UW-Extension – 115 Bellevue Street, Green Bay, WI

Present:	Norb Dantinne, Bernie Erickson, Mike Fleck, Norb VandeHei, Dave Kaster
Excused:	Dan Haefs
Also Present:	Executive Streckenbach, Bill Hafs, Jon Bechle

I. Call Meeting to Order:

The meeting was called to order by Chair Dantinne at 6:00 p.m.

II. Approve/Modify Agenda:

Motion made by Supervisor Erickson and seconded by Supervisor Fleck to approve. Vote taken. **MOTION CARRIED UNANIMOUSLY**

III. Approve/Modify Land Conservation Subcommittee Minutes of May 23, 2011:

Motion made by Supervisor Kaster and seconded by Supervisor Fleck to approve. Vote taken. **MOTION CARRIED UNANIMOUSLY**

1. Land and Water Conservation Department Budget Update, May 2011 (will be provided at meeting if financials available).

County Conservationist Bill Hafs provided (attached) a copy of the department budget and grant updates for May 31, 2011. He informed that his department's total expenses were 37% and had only collected 34% of their revenue so far but they will make that up. He informed that the grant revenues were separated out because it was easier for them to track the two grants.

Motion made by Supervisor Fleck and seconded by Norb Vande Hei to receive and place on file. Vote taken. **MOTION CARRIED UNANIMOUSLY**

2. Budget Adjustment Request (11-76): Fuel and Maintenance of vehicles is tracked through LWCD budget and transferred for payment to Baird Creek and West Shore Budgets.

Their fuel expenses and vehicle repairs are tracked through their regular Land Conservation budget. They put a key in at the county shop to keep track of their gasoline for reimbursement from the Federal Government.

Motion made by Supervisor Erickson and seconded by Norb Vande Hei to approve. Vote taken. **MOTION CARRIED UNANIMOUSLY**

3. Review status of previous year and approve Fall-2011 Spring-2012 authorized bow hunt at Mental Health Center property. Jon Bechle

Bechle informed that they do this every year in preparing for the fall archery season which starts the 2nd Saturday in September. This is part of the City of Green Bay's archery only hunt that was established in 2003. There had been four sites identified such as the former Mental Health Center, Community Treatment Center, and the jail. The program had been using two of them in the past years. One site hadn't been used for a while because it had been near where the CTC had been built. Last year there were five deer harvested on that property which is about average. They were also hunting on the UWGB property, across the highway and have been doing that about a year or two longer than out at the former MHC. Hunters need to apply through the City of Green Bay program and are subjected to a police background check and they have to provide certain information on their application which is kept by the city. Bechle informed that he worked with Assistant Park Director Doug Hartmann. Hartmann coordinates with Facilities Director Bill Dowell and contacts Human Services Director Brian Shoup as well as the jail to notify that there will be hunters on those properties. Hunters provide their vehicle descriptions and have designated parking spots; their application information is provided to those facilities so if they have any questions they know who the hunters are and their vehicles are parked. From Bechle's knowledge there hadn't been any complaints from nearby homeowners, businesses, etc. He informed that had always checked with the police to see if there were any complaints and they haven't indicated anything. The city placed signs near hunting areas to notify people using the trails that there is hunting activity out there and to stay on the trails. Hunters are told that they have to stay so far off the trails.

Erickson stated that he had not seen any deer near the sanctuary, where he had seen an abundance in the past. He felt it might pay to see what the deer population was. If the goal was to eradicate or control them, he felt it was accomplished. Bechle stated they were not trying to eradicate but they could, it's just archers in certain areas, he added that hunters cannot access the sanctuary grounds. Erickson felt that the deer go to the sanctuary grounds so they can access the yard waste in the fall. Bechle stated the deer were still around and there were still crop damage complaints. That's how the county was involved, through the wildlife damage program which is administered through the Land and Water Conservation program. There are still home owner complaints about their landscape plants and gardens.

Motion made by Supervisor Erickson and seconded by Norb Vande Hei to approve. Vote taken. MOTION CARRIED UNANIMOUSLY

4. **Such Other Matters as Authorized by Law. None.**
5. **Adjourn:**

Motion by Supervisor Kaster and seconded by Supervisor Fleck to adjourn at 7:12 p.m. MOTION CARRIED UNANIMOUSLY

Respectfully submitted,

Alicia A. Loehlein
Recording Secretary

BUDGET ADJUSTMENT REQUEST

<u>Adjustment</u>	<u>Description</u>	<u>Approval Level</u>
<input type="checkbox"/> Category 1	Reallocation from one account to another <u>within</u> the major budget classifications.	Department Head
<input type="checkbox"/> Category 2	<input type="checkbox"/> a. Change in Outlay not requiring the reallocation of funds from another major budget classification. <input type="checkbox"/> b. Change in any item within Outlay account which requires the reallocation of funds from any other major budget classification or the reallocation of Outlay funds to another major budget classification.	County Executive County Board
<input type="checkbox"/> Category 3	<input type="checkbox"/> a. Reallocation between budget classifications other than 2b or 3b adjustments. <input type="checkbox"/> b. Reallocation of personnel services and fringe benefits to another major budget classification except contracted services, or reallocation to personnel services and fringe benefits from another major budget classification except contracted services.	County Executive County Board
<input type="checkbox"/> Category 4	Interdepartmental reallocation or adjustment (including reallocation from the County's General Fund)	County Board
<input checked="" type="checkbox"/> Category 5	Increase in expenses with offsetting increase in revenue	County Board

Increase	Decrease	Account #	Account Title	Amount
<input checked="" type="checkbox"/>	<input type="checkbox"/>	110.048.300.4302	State Grant Revenue	\$81,950
<input checked="" type="checkbox"/>	<input type="checkbox"/>	110.048.300.5801	Landowner Payment	\$81,950
<input type="checkbox"/>	<input type="checkbox"/>			
<input type="checkbox"/>	<input type="checkbox"/>			

Narrative Justification:

The Land and Water Conservation Department, as part of its 2012 DATCP/DNR grant application, received \$81,950 to fund two projects in 2011. This was unanticipated revenue for 2011. These funds are expected to be used in 2011 with the grant period ending January 31, 2012 for project #1 (\$36,450) and February 28, 2012 for project #2 (\$45,500).

William C. Hays
Signature of Department Head

Department: Land & Water Conservation

Date: 7/12/2011

AUTHORIZATIONS

[Signature]
Signature of Executive
Date: 7/14/11

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7/13/11

FINAL REPORT

Brown County Waste Transformation Initiative

June 2011

Managing organic waste streams, generated by multiple Brown County operations, led to the creation of a public/private partnership which considered the viability of aggregating and processing select organic wastes into a saleable fertilizer product.

In 2008, the Brown County Waste Transformation Initiative (BCWTI) was formed. The eleven stakeholders pledged \$245,000 to study the feasibility of a regional facility to manufacture fertilizer product(s). This group included:

Waste generators:

- American Foods Group (AFG)
- City of Appleton, Wastewater Treatment Plant (AWWTP)
- Green Bay Metropolitan Sewerage District (GBMSD)
- JBS Packerland (JBS)
- Sanimax

End users (3) of finished product(s):

- Ag Ventures LLC
- Daanen & Janssen
- Encap

Equipment manufacturer:

- Feeco International

The project was led by stakeholders:

- Brown County Land & Water Conservation Department (BCLWCD)
- University of Wisconsin – Green Bay (UWGB)

This project followed-up on two previous studies, the Fox River Valley Organics Recycling (FRVOR) Study from 2001 and the Brown County Regional Compost Initiative Study (2004).

The project consisted of the following steps:

- Waste stream characterization
- Market Study
- Preliminary Financial Analysis
- On-farm field research

WASTE STREAM CHARACTERIZATION

BCWTI first identified 8 waste streams to study for the possible inclusion into an agglomerated fertilizer pellet. Those streams were from GBMSD (2), AFG (3) and JBS Packerland (3). Waste streams were collected in 5 gallon samples and taken to the Feeco lab where they were processed. This involved drying the materials, mixing the material(s) to predetermined amounts and then sending the blend through a pan pelletizer. After the pellets were created, Feeco did physical property testing – crush strength, bulk density, nutrient content and size – to determine which blends met the requirements necessary to market the product as a fertilizer pellet. Because of their high fiber content and delusion of nutrient content, it was determined that the pen and paunch materials from the meat packing plants required pre-conditioning (grinding). Grinding these materials is very expensive therefore they were eliminated from the mix.

Through the efforts of UWGB, Feeco, Encap and BCLWCD, BCWTI also studied the possibility of livestock manures being one of the waste streams. Work focused on advanced, on farm solid separation of liquid manure using prototype equipment and polymers to capture the phosphorus (60 – 80%) in the solids. The solids were then agglomerated into a pellet which was complementary to the other 4 waste streams.

Several challenges exist with incorporating livestock manure into this plan. They include the need for advanced, on – farm solid separation to reduce the volumes being transported, maintaining a consistent nutrient content between farm sources and the uncertainty the farmers willingness to “give up” these manures and in what volumes. Another key challenge BCWTI identified is the farmers belief that they do not have a problem using existing practices to manage livestock manures.

MARKET STUDY

MJA Organics was selected to generate a market study which would help determine the market and revenue potential of the product. MJA Organics contacted numerous farmers and turf professionals (private & public) to determine their interest in a BCWTI natural based fertilizer. The vast majority of respondents indicated they liked the idea of recycling natural nutrient resources and would look positively on BCWTI 4 – blend fertilizer but also stated economics would be the primary factor effecting their decision to include this product into their plant nutrient program. Using 2009 synthetic fertilizer prices MJA Organics suggested pricing for BCWTI 4 - blend as follows:

- Agricultural - \$65.00/ton FOB dryer.
- Turf - \$110.00/ton FOB dryer.
- Encap ® - \$70.00/ton FOB dryer.

It should be noted that the MJA Organics used a nutrient value of 3-2-0 which was determined using all eight waste streams. After the pen and paunch materials were removed (thus creating BCWTI 4 – blend) the nutrient content rose to 6-2-0 which is very similar to the widely acclaimed *Milorganite*® product which is priced approximately \$150.00/to FOB the dryer.

PRELIMINARY FINANCIAL ANALYSIS

BCWTI stakeholders selected Performance Sciences LLC to determine the parameters for which BCWTI is a self – sustaining entity. The 3 key parameters considered were:

- Average selling price – per ton FOB/dryer (\$50, \$100, \$150)
- Tipping fees – per ton (\$20, \$25, \$30)
- Dryer energy cost - \$/mmBTU (\$0, \$5, \$10)

General conclusions of this work included:

- Economic viability at an assumed selling price (ASP) of \$50.00/ton required energy cost below \$5.00/mmBTU.
- The project is generally viable at an ASP of \$150.00/ton
- An ASP of \$100.00/ton requires some level of energy cost reduction.
- Project economics are more sensitive to selling price and energy costs than to tipping fees.

**Outside Equity Investors' Internal Rate of Return
as a Function of Key Price and Cost Parameters**

Selling Price per Ton (fob Dryer)	Tipping Fee	Energy Cost Dryer	Outside Investors' IRR
\$50	\$20	0	24.78%
\$50	\$20	5	Negative
\$50	\$20	10	Negative
\$50	\$25	0	34.72%
\$50	\$25	5	3.95%
\$50	\$25	10	Negative
\$50	\$30	0	43.21%
\$50	\$30	5	18.35%
\$50	\$30	10	Negative
\$100	\$20	0	45.56%
\$100	\$20	5	21.94%
\$100	\$20	10	Negative
\$100	\$25	0	52.82%
\$100	\$25	5	32.30%
\$100	\$25	10	Negative
\$100	\$30	0	59.42%
\$100	\$30	5	41.05%
\$100	\$30	10	15.19%
\$150	\$20	0	61.31%
\$150	\$20	5	43.47%
\$150	\$20	10	18.98%
\$150	\$25	0	67.27%
\$150	\$25	5	50.90%
\$150	\$25	10	29.81%
\$150	\$30	0	72.85%
\$150	\$30	5	57.63%
\$150	\$30	10	38.85%

Color Codes:

	Returns attractive to Venture Capital (IRR > 40%)
	Returns attractive to Private Equity (30% <IRR<40%)
	Profitable, but returns below 30%
	Negative rate of return-not feasible

ON – FARM TRIALS

The objective of these trials was to compare recommended commercial N fertilization for corn with a blend containing a lower rate of urea and a small proportion of pelletized material. Field scale demonstration studies were conducted in the Green Bay area at three sites having different soil types in 2009 using commercial application equipment. The soil types at the three sites included: 1) UWEX Group C – eastern red soils; 2) UWEX Group D – northern silt loam soils; and, UWEX Group E – sand or loamy sand soils. Replicated small plot studies were utilized for the 2010 on-farm evaluations with the same cooperators on similar soils. The same field was used at two of the sites and the third site in 2010 was about one-half mile away. It had been at least one year since soybean or two years following alfalfa. The sites had not been manured in the past two years. All sites were responsive to N fertilization.

In 2009, materials were applied pre-plant with a commercial air-delivery fertilizer spreader in 60 ft. x 200 ft. swaths. Materials were incorporated within two days of application by tillage. Three treatments, plus an unfertilized control, were used. There were three replications in each field. Treatments included: Urea applied at the UWEX N rate of 120 lb N/a; the Four Blend material applied as part of a blend with urea at 75 and 90 % of the recommend urea N; and a 0 N control to confirm the N responsiveness of the field. The 90 % N and 75 % treatments received 5 lb and 9 lb/a total N from the Four Blend, respectively. The small plot studies used three replications in 10 x 30 ft. plots having identical treatments to 2009 that were hand-applied prior to spring tillage and were incorporated shortly after application. Each field received uniform starter fertilizer, pest management, and herbicide treatment by the grower.

Measurements included: 1) routine soil test for the study area; 2) pre-plant nitrate test for the study area; 3) individual plot earleaf samples taken at silking analyzed for N; and, 4) grain yield. Grain yield in 2009 was taken by harvesting two passes per plot (measured separately in a weigh wagon and then averaged for statistical analysis) and one pass through the center of the 0 N plot. Plots were hand-harvested in 2010, with a subsample of the harvested cobs used to adjust for shelling percentage and moisture content. Grain yield is reported at 15.5 % moisture.

Table 1 shows the routine and pre-plant nitrate test for the three sites in 2009 and 2010. In general fertility levels were very good and all sites were responsive to N. Only a minimal N credit from "carryover N" was found at any site.

Tables 2 and 3 show the measured grain yield and earleaf N concentrations measured at silking. These data confirm that the sites were responsive to N in that fertilization either as N alone or as mixtures with the Four Blend materials increase tissue N levels and yield. While the difference between urea alone and the two blends were not significantly different, they were statistically equal and possibly slightly greater (90% treatment). This response was possibly due to other nutrients such as S and certain micronutrients found in the pellets.

These two years of field research confirm that the Four Blend material can be successfully combined in small proportions with urea fertilizer, thereby reducing the amount of urea purchased by a farmer and providing a reasonable outlet for the product in the region.

Table 1. Routine soil test and pre-plant nitrate test for the BCWTI sites in 2009 and 2010, Brown Co., Wis.

Site	Year	pH	Org. Matter	P	K	PPNT
			%	----- ppm -----		lb/a
Group C	2009	7.3	2.5	33	144	60
	2010	7.5	3.4	21	70	76
Group D	2009	7.2	1.9	33	83	65
	2010	7.6	2.3	23	82	52
Group E	2009	5.8	1.6	76	120	46
	2010	7.2	3.4	45	134	62

N to apply: UWEX lb N/a recommendation – (PPNT – 50).

Table 2. Effect of treatment on the earleaf N concentration and grain yield in the BCWTI on-farm strip trials, Brown Co., Wis., 2009.

Treatment	Group C – E. Red Soil		Group D – N. Silt loam		Group E – Loam sand	
	Earleaf N	Yield	Earleaf N	Yield	Earleaf N	Yield
	%	bu/a	%	bu/a	%	bu/a
Control	1.88	160	1.48	73	1.48	101
120 Urea	2.08	184	1.95	99	1.67	124
90 % + 5 N	2.22	188	2.08	101	1.87	127
75 % + 9 N	2.14	178	1.72	101	1.65	109
Pr>F	0.02	0.01	<0.01	<0.01	0.06	0.67
LSD	0.17	11	0.26	10	0.23	--

Table 3. Effect of treatment on the earleaf N concentration and grain yield in the BCWTI on-farm small plot trials, Brown Co., Wis., 2010.

Treatment	Group C – E. Red Soil		Group D – N. Silt loam		Group E – Loam sand	
	Earleaf N	Yield	Earleaf N	Yield	Earleaf N	Yield
	%	bu/a	%	bu/a	%	bu/a
Control	1.67	114	1.42	93	1.43	75
120 Urea	2.15	175	2.35	170	2.01	126
90 % + 5 N	2.22	207	2.41	176	2.02	118
75 % + 9 N	2.07	201	2.33	163	1.92	109
Pr>F	<0.01	<0.01	<0.01	<0.01	0.04	0.03
LSD	0.21	40	0.15	26	0.24	32

OWNERSHIP

Stakeholders were asked “Who should own a regional facility?” The overwhelming majority of respondents stated they wanted Brown County or the Green Bay Metropolitan Sewerage District or both to take ownership of a regional facility. Reasons why stakeholders favored public ownership focused on these entities are currently operating waste/recycling businesses, regulatory concerns, and waste transformation (with exception of Feeco and Encap) is not part of the stakeholders’ core business. The final but maybe most important reason the stakeholders gave for Brown County and/or GBMSD to be the primary owners is that this project benefits the community as a whole which is the primary function of Brown County and GBMSD.

Concurrent to this project, GBMSD conducted an internal study examining upgrading their bio-solids management system. Ultimately, GBMSD selected anaerobic digestion with further thermal processing, including producing fertilizer pellets. They are currently working internally, and with select external stakeholders to refine this selection and move the project forward.